

Amdt. dated May 13, 2003
Reply to Office action of 2/13/2003

Serial No. 09/981,560
Docket No. BLD920010018US1
Firm No. 0036.0094

REMARKS/ARGUMENTS

The Examiner has not indicated whether he has reviewed form PTO-1449 "Information disclosure citation in an application" (IDS) mailed by the applicant on 12/12/02. Enclosed with the amendment are the following:

(1) copy of acknowledgment postcard that indicates receipt of IDS by the USPTO on 12/13/02.

(2) copy of form PTO-1449 "Information disclosure citation in an application" submitted by the applicant.

The Examiner is requested to initial the document numbers indicated in form PTO-1449 by the application in the next office action.

The Examiner has rejected claims 1-58. Applicants have amended the requirements of independent claims 1, 24, and 36 and have amended certain other claims for minor grammatical errors as indicated in the listing of claims. Applicants traverse the rejections for the reasons discussed below.

Claims 1-3, 5-7, 9-16, 19-20, 22, 24-26, 28-34 and 54-55 are Patentable Over the Cited Art

The Examiner rejected pending claims 1-3, 5-7, 9-16, 19-20, 22, 24-26, 28-34 and 54-55 under 35 U.S.C. §102(b) as being anticipated by Garr (US 5,802,420). Applicants have amended the requirements of independent claims 1, 24, and 36 and have amended certain other claims for minor grammatical errors as indicated in the listing of claims. Applicants traverse the anticipation rejections for the reasons discussed below.

[Claims 1 and 24] The Examiner has rejected claim 1 under 35 U.S.C. §102(b) [Office action: pages 2-3] as being unpatentable over Garr. Applicants have amended claim 1, and amended claim 1 describes a method for monitoring depletion of a consumable resource in a monitored system, comprising:

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receiving information on at least one unit of work to be processed by the monitored system, wherein the monitored system would deplete the consumable resource when processing each unit of work;

determining a rate of resource depletion per unit of work processed;

estimating an amount of resource remaining after the monitored system processes the at least one unit of work, wherein the estimate is a function of the determined rate of resource depletion and a number of the one or more units of work remaining to be processed; and

generating a graphical element for display on a computer monitor indicating the estimated amount of the resource remaining.

The amendment to original claim 1 requires that the estimate is a function of the number of the one or more units of work remaining to be processed. Original independent claim 1 required that the estimate was a function of one or more units of work to process. The claim language has support in at least pages 4-13 and FIGs. 1-7 of the application. Claim 1 requires estimating an amount of resource remaining after the monitored system processes the at least one unit of work, wherein the estimate is a function of the determined rate of resource depletion and a number of the one or more units of work remaining to be processed.

Nowhere does the cited Garr (figs. 1, 7, col. 3: lines 24-45, col. 13: lines 34-50, col. 18: lines 15-46) teach the claim requirement of the estimate being a function of the number of the one or more units of work remaining to be processed. The cited Garr discusses predicting the number of pages and/or toner in the printer remaining for printing operations. The cited Garr also discusses various gradation levels of the toner. The cited Garr also discusses change in levels of a consumable resource during a print job. Garr further describes that the prediction is based on the previous printing history of the printer while using this particular toner cartridge (Garr: Abstract). The claims require that the estimate be a function of the determined rate of resource depletion and a number of the one or more units of work remaining to be processed. Nowhere, does the cited Garr teach that the estimate is to be based on the number of the one or more units of work remaining to be processed. Moreover, Garr teaches away from the pending claims because Garr

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bases the estimate on the previous printing history whereas the claims requires the estimate on the number of the one or more units of work remaining to be processed.

Therefore, the cited Garr estimates the amount of resource remaining based on previously determined rate of resource depletion, whereas the amended claim 1 requires the estimate to be based on the amount of work that remains to be processed. The cited Garr does not consider the amount of work that still remains to be processed in estimating the amount of resource remaining.

For the above reasons, claim 1 is patentable over the cited art. The Examiner has provided similar reasons for rejecting independent claim 24. Independent claim 24 has been amended in a manner similar to the amendment of claim 1. Applicants argue that independent claim 24 is patentable over the cited art for the reasons described above for claim 1. For the above reasons, claim 24 is patentable over the cited art.

[Claims 9 and 28] The Examiner has rejected independent claim 9, as anticipated by Garr. Claim 9 is a method for monitoring depletion of a consumable resource in a printer, comprising:

receiving a print job having print matter for at least one page;

determining a rate of resource depletion per page;

estimating an amount of resource remaining after the printer processes the print job as a function of a number of the at least one page in the print job and the determined rate of resource depletion; and

generating a graphical element for display on a computer monitor indicating the estimated amount of the resource remaining.

Nowhere does the cited Garr (figs. 1, 7, col. 3: lines 24-45, col. 13: lines 34-50, col. 18: lines 15-46) teach the claim requirement of estimating an amount of resource remaining after the printer processes a print job as a function of a number of the at least one page in the print job and the determined rate of resource depletion per page. The cited Garr discusses predicting the number of pages and/or toner remaining for printing operations. The cited Garr also discusses various gradation levels of the toner. The cited Garr also discusses change in levels of a

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consumable resource during a print job. Garr further describes that the prediction is based on the previous printing history of the printer while using this particular toner cartridge (Garr: Abstract). The claims require that the estimate is a function of a number of the at least one page in the print job and the determined rate of resource depletion per page. Nowhere, does the cited Garr teach the estimate to be based on the rate of resource depletion per page. Garr teaches away from the pending claims because Garr bases the prediction on the previous printing history whereas the claims requires the prediction to be based on the rate of resource depletion per page of a print job. Furthermore, Garr does not teach estimating while a print job is being processed based on characteristics of the print job being processed.

Therefore, the cited Garr estimates the amount of resource remaining based on previously determined rate of resource depletion, whereas claim 9 requires the estimate to be based on estimating an amount of resource remaining after the printer processes the print job as a function of a number of the at least one page in the print job and the determined rate of resource depletion per page of the print job. The cited Garr does not take into account the print job (such as the at least one page) while estimating the amount of resource remaining

For the above reasons, claim 9 is patentable over the cited art. The Examiner has provided similar reasons for rejecting independent claim 28. Applicants argue that independent claim 28 is patentable over the cited art for the reasons described above for claim 9. For the above reasons, claim 28 is patentable over the cited art.

[Claims 2-8, 10-23, 25-27, 29-35] The Examiner has also rejected pending claims 2-8, 10-23, 25-27, 29-35, where pending claims pending claims 2-8, 10-23, 25-27, 29-35 10-23 depend directly or indirectly on independent claims 1, 9, 24, or 28 which are patentable over the cited art for the reasons discussed above. Moreover, the following of these claims provide additional grounds of patentability over the cited art for the reasons discussed below.

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[Claims 5, 13, 26] The Examiner has rejected claims 5, 13, and 26 under 35 §U.S.C. 102(b) as unpatentable over Garr (page 3 of Office Action). Claim 5 depends on pending independent claim 1, and further requires:

receiving notification that the consumable resource is depleted in the monitored system;
and

determining an adjustment factor if the estimated amount of resource remaining is not estimated to be depleted, wherein the adjustment factor is applied when estimating the amount of resource remaining during use of the monitored system after the consumable resource is replenished in the monitored system.

Nowhere does the cited Garr (figs. 1, 7, col. 3: lines 13-45, col. 12: lines 34- col. 14, line 54 and col. 18, lines 15-46) teach applying the adjustment factor when estimating the amount of resource during use of the monitored system. The cited Garr discusses level change that arrives during a print job and the replacement of cartridges. However, the cited Garr does not teach determining an adjustment factor when estimating the amount of resource remaining during use of the monitored system. Therefore, claim 5 is patentable over the cited art. Claims 13 and 26 is patentable for the similar reasons as the patentability of claim 5.

[Claim 6 and 14] The Examiner has rejected claims 6 and 14, under 35 §U.S.C. 102(b) as unpatentable over Garr (page 4 of Office Action). Claim 6, depends on pending independent claim 1, and further comprises:

after the consumable resource is fully replenished, initializing the estimated amount of resource remaining to full capacity, wherein estimating the amount of resource remaining comprises:

(i) multiplying the number of one or more units of work to process times the rate of resource depletion to estimate an amount of resource depletion that results from processing the at least one unit of work; and

(ii) setting the estimated amount of resource remaining to the estimated amount of resource remaining minus the estimated amount of resource depletion.

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Nowhere does the cited Garr (FIGs. 1, 7, col. 3: lines 24-35, col. 13: lines 34-50, col. 18: lines 15-46) teach estimation of an amount of resource depletion that results from processing the at least one unit of work. The cited Garr teaches estimating the amount of resource depletion but the estimation is not based on processing the at least one unit of work received as required by the claim. For the above reasons, claim 6, is patentable over the cited art. Claim 14 is patentable for the similar reasons as the patentability of claim 6.

[Claim 7 and 15] The Examiner has rejected claims 7 and 15, under 35 §U.S.C. 102(b) as unpatentable over Garr (page 4 of Office Action). Claim 7, depends on pending independent claim 1, and further comprises:

determining whether the estimated amount of the resource remaining indicates that the consumable resource is depleted in the monitored system; and

generating a message indicating that there is not a sufficient amount of resource remaining to process the at least one unit of work if the resource is determined to be depleted in the monitored system.

Nowhere does the cited Garr teach generating a message a message indicating that there is not a sufficient amount of resource remaining to process the at least one unit of work if the resource is determined to be depleted in the monitored system. The cited Garr discusses the display of the amount of paper or toner remaining. However, the cited Garr does not teach whether the amount of paper or toner is adequate to complete the at least one unit of work. Accordingly claims 7 and 15 are patentable over the cited art.

[Claims 16] The Examiner has rejected claim 16, under 35 §U.S.C. 102(b) as unpatentable over Garr (page 5 of Office Action). Claim 16, depends on pending independent claim 9, and further comprises:

determining at least one attribute of the print job; and

determining one attribute factor for each determined attribute of the print job, wherein the determined at least one attribute factor is used to estimate the amount of the resource remaining.

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Nowhere does the cited Garr teach determining one attribute factor for each determined attribute of the print job, wherein the attribute factor is used to estimate the amount of the resource remaining. The portions of the cited Garr do not teach any attribute or attribute factor related in the way required by the claims. Neither has the Examiner indicated that the cited Garr teaches attribute factors or an attribute of the print job.

For the above reasons, claim 16 is patentable over the cited art.

Claims 4, 8, 21, 27, 35-51 and 56-57 are Patentable Over the Cited Art

The Examiner rejected pending claims 4, 8, 21, 27, 35-51, and 56-57 under 35 U.S.C. §103(a) as being unpatentable over Garr.

[Claims 4, 8, 21, and 56] The Examiner has rejected claims 4, 8, 21 and 56 under 35 §U.S.C. 103(a) as unpatentable over Garr (page 9-10 of Office Action).

Claim 4 depends on pending independent claim 1, and further comprises:

estimating a number of units of work that can be processed with the estimated amount of the resource remaining; and

generating information to display with the generated graphical element indicating the estimated number of units of work.

Nowhere does the cited Garr (figs. 1, 7, col. 3 lines 13-45, col. 13. Lines 34-50, col. 18. Lines 15-46) teach or suggest the claim requirement of estimating the number of units of work that can be processed with the estimated amount of resource remaining. The cited Garr discusses different toner sizes, i.e. consumable resources. However, nowhere does the cited Garr teach or suggest estimating the number of units of work that can be processed with the estimated amount of resource remaining. The cited Garr indicates the amount of resource remaining. However, the amount of resource remaining is based on prior rate of resource consumption and not on the current job. For the above reasons, claims 4, 8, 21 and 56 are patentable over the cited art.

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[Claim 36] The Examiner has cited Garr in rejecting claim 36 under 35 U.S.C. §103. Independent claim 36 that is an article of manufacture has been amended in a manner similar to the amendment of claim 1. Amended independent claim 36 requires estimating an amount of resource remaining after the monitored system processes the at least one unit of work, wherein the estimate is a function of the determined rate of resource depletion and a number of the one or more units of work remaining to be processed. Nowhere does the cited Garr (figs. 1, 7, col. 3: lines 24-45, col. 13: lines 34-50, col. 18: lines 15-46) teach or suggest the claim requirements based on the reasons described above for claim 1.

For the above reasons, claim 36, is patentable over the cited art.

[Claim 44] The Examiner has rejected independent claim 44 under 35 USC §103 as being unpatentable over Barr. Independent claim 44 is an article of manufacture including code for monitoring depletion of a consumable resource in a printer, wherein the code causes operations to be performed comprising:

receiving a print job having print matter for at least one page;

determining a rate of resource depletion per page;

estimating an amount of resource remaining after the printer processes the print job as a function of a number of the at least one page in the print job and the determined rate of resource depletion; and

generating a graphical element for display on a computer monitor indicating the estimated amount of the resource remaining.

The Examiner has cited Garr (figs. 1, 7, col. 3: lines 24-45, col. 13: lines 34-50, col. 18: lines 15-46) teach the claim requirement of estimating an amount of resource remaining after the printer processes a print job as a function of a number of the at least one page in the print job and the determined rate of resource depletion per page. The cited Garr discusses predicting the number of pages and/or toner remaining for printing operations. The cited Garr also discusses various gradation levels of the toner. The cited Garr also discusses change in levels of a consumable resource during a print job. Garr further describes that the prediction is based on the

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previous printing history of the printer while using this particular toner cartridge (Garr: Abstract). The claims require that the estimate is a function of a number of the at least one page in the print job and the determined rate of resource depletion per page. Nowhere, does the cited Garr teach or suggest that the estimate be based on the rate of resource depletion per page. Garr teaches away from the pending claims because Garr bases the prediction on the previous printing history whereas the claims requires the prediction to be based on the rate of resource depletion per page of a print job.

Therefore, the cited Garr is estimates the amount of resource remaining based on previously determined rate of resource depletion, whereas claim 44 requires the estimate to be based on estimating an amount of resource remaining after the printer processes the print job as a function of a number of the at least one page in the print job and the determined rate of resource depletion per page of the print job.

For the above reasons, claim 44 is patentable over the cited art.

[Claims 37-43 and 45-58] The Examiner has also rejected pending claims 37-43 and 45-58, where claims 37-43 and 45-58 depend directly or indirectly on independent claim 36 and 44. Claims 37-43 and 45-58 are patentable over the cited art because they depend, directly or indirectly, from independent claims 36 and 44 which are patentable over the cited art for the reasons discussed above. Furthermore, article of manufacture claims 37-43 and 45-58 include many requirements similar to method claims 2-8, and 10-23 respectively. Claims 37-43 and 45-58 are patentable for similar reasons to the patentability of claims 2-8 and 10-23, based on the argued claim requirements of claims 2-8 and 10-23.

Claims 17-18 and 52-53 are Patentable Over the Cited Art

The Examiner rejected claims 17-18, and 52-53 under 35 U.S.C. §103 as unpatentable over Garr in view of Acquaviva (US 5,459,556).

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[Claim 17 and 52] Dependent pending claims 17 and 52 depend from claims 16 and 51 respectively and add the requirement that the consumable resource comprises toner and wherein the determined attributes of the print job includes contrast and boldness.

The Examiner has rejected claims 17 and 52 under 35 USC §103 as unpatentable over Garr in view of Acquaviva. Neither the cited Garr nor the cite Acquaviva teach or suggest that the determined attributes of the print job includes contrast and boldness and that the consumable resource comprises toner. While Acquaviva discusses toner usage per print neither Acquaviva nor Garr teach or suggest that the determined attributes of contrast and boldness are used to estimate the amount of resources remaining as required by the claims.

Therefore claims 17 and 52 are patentable over the cited art.

[Claims 18 and 53] Dependent pending claims 18 and 53 depend from claims 17 and 52 respectively and add the requirement of providing a contrast table and boldness table providing different contrast and boldness factors, respectively, for different contrast and boldness settings.

The Examiner has rejected claims 18 and 53 under 35 USC §103 as unpatentable over Garr in view of Acquaviva. Neither the cited Garr nor the cite Acquaviva teach or suggest boldness tables that provide different contrast and boldness settings, where contrast and boldness are used to estimate the amount of resources remaining as required by the claims.

Therefore claims 18 and 53 are patentable over the cited art.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-58 are patentable over the art of record. Applicants have not added any claims. Nonetheless, should any additional fees be required, please charge Deposit Account No. 50-0585.

The attorney of record invites the Examiner to contact him at (310) 553-7977 if the Examiner believes such contact would advance the prosecution of the case.

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Title: METHOD, SYSTEM, AND PROGRAM FOR MONITORING A CONSUMABLE RESOURCE USED BY A SYSTEM

Client: International Business Machines Corporation

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